PORSF
11.3.31.5.1

Columbia Analytical Services inc.

September 3, 1992

Danil Hancock
Port of Portland
Box 3529
Portland, OR 97208

Re: **Berth 501 Dredging Project**

Dear Danil:

Enclosed are the results of the samples submitted to our lab on August 14, 1992. Preliminary results were transmitted via facsimile on August 24, 25, and 28, and on September 1, 1992. For your reference, these analyses have been assigned our work order number K925054.

All analyses were performed in accordance with our laboratory's quality assurance program. Reproduction of reports is allowed only in whole, not in part. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Abbie Spielman
Project Chemist

AS/eaw

92ED88
T-5 Dredging
B501

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Analyzed:**	08/20/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
B501892-1	K5054-1	65.9
B501892-2	K5054-2	61.1

Approved by Ann Spielman Date 9/3/92

000 1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Analyzed:**	08/24/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Solids, Total Volatile
EPA Method Modified 160.4
Percent (%)

Sample Name	Lab Code	Result
B501892-1	K5054-1	3.38
B501892-2	K5054-2	6.87

Approved by Ame Apelman Date 9/3/92

000 2

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Date Received: 08/14/92
Work Order No.: K925054

Total Metals
mg/Kg (ppm)
Dry Weight Basis

Sample Name:			B501892-1	B501892-2	Method Blank
Lab Code:			K5054-1	K5054-2	K5054-MB
Analyte	**EPA Method**	**MRL**			
Antimony	200.8	0.05	ND	0.17	ND
Arsenic	200.8	0.05	1.93	5.60	ND
Cadmium	200.8	0.01	0.10	1.29	ND
Chromium	6010	2	14	27	ND
Copper	6010	2	12	34	ND
Lead	200.8	0.05	3.92	28.8	ND
Mercury	7471	0.02	ND	0.15	ND
Nickel	200.8	0.1	13.4	18.0	ND
Silver	200.8	0.01	0.06	0.22	ND
Zinc	6010	2	49	175	ND
Solids, Total (%)	160.3	--	64.0	50.8	--

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Anne Apelman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Date Received: 08/14/92
Work Order No.: K925054

Particle Size Determination
ASTM Method Modified D 422

Sample Name: B501892-1
Lab Code: K5054-1

Sand Fraction (Grams):	7.5177
Sand Fraction Wt. Recovered (Grams):	7.1410
Sand Fraction % Recovery:	95.0

Weight as Received (Grams)	26.7111
Percent Solids	63.7
Weight Oven-Dried (Grams)	17.0150

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Wt. Recovered
Medium Gravel	4.75 mm	4	0	0.00
Fine Gravel	2.00 mm	10	0.1831	1.08
Very Coarse Sand	0.850 mm	20	0.1047	0.62
Coarse Sand	0.425 mm	40	*0.0563	0.33
Medium Sand	0.250 mm	60	0.1986	1.17
Fine Sand	0.106 mm	140	3.3067	19.4
Very Fine Sand	0.075 mm	200	2.0728	12.2
Clay			1.9050	11.2
Silt			8.8450	52.0
		Total	16.6722	98.0

* Organic matter present

Approved by Anne Apelman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Date Received: 08/14/92
Work Order No.: K925054

Particle Size Determination
ASTM Method Modified D 422

Sample Name: B501892-1
Lab Code: K5054-1Dup

Sand Fraction (Grams): 8.0462
Sand Fraction Wt. Recovered (Grams): 8.0528
Sand Fraction % Recovery: 100

Weight as Received (Grams)	29.9071
Percent Solids	63.7
Weight Oven-Dried (Grams)	19.0508

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Wt. Recovered
Medium Gravel	4.75 mm	4	0	0.00
Fine Gravel	2.00 mm	10	0.0924	0.49
Very Coarse Sand	0.850 mm	20	0.0997	0.52
Coarse Sand	0.425 mm	40	0.0441	0.23
Medium Sand	0.250 mm	60	0.1845	0.97
Fine Sand	0.106 mm	140	3.7445	19.7
Very Fine Sand	0.075 mm	200	2.7164	14.3
Clay			2.1500	11.3
Silt			9.8400	51.6
		Total	18.8716	99.1

Approved by Arnie Spielman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Date Received: 08/14/92
Work Order No.: K925054

Particle Size Determination
ASTM Method Modified D 422

Sample Name: B501892-1
Lab Code: K5054-1Trip

Sand Fraction (Grams): 7.5001
Sand Fraction Wt. Recovered (Grams): 7.5131
Sand Fraction % Recovery: 100

Weight as Received (Grams)	27.0842
Percent Solids	63.7
Weight Oven-Dried (Grams)	17.2526

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Wt. Recovered
Medium Gravel	4.75 mm	4	0	0.00
Fine Gravel	2.00 mm	10	0.1475	0.85
Very Coarse Sand	0.850 mm	20	0.0339	0.20
Coarse Sand	0.425 mm	40	0.0298	0.17
Medium Sand	0.250 mm	60	0.1504	0.87
Fine Sand	0.106 mm	140	3.3612	19.5
Very Fine Sand	0.075 mm	200	2.4709	14.3
Clay			1.9350	11.2
Silt			9.2300	53.5
		Total	17.3587	100

Approved by Allie Spielman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Date Received: 08/14/92
Work Order No.: K925054

Particle Size Determination
ASTM Method Modified D 422

Sample Name: B501892-2
Lab Code: K5054-2

Sand Fraction (Grams): 7.5102
Sand Fraction Wt. Recovered (Grams): 7.4953
Sand Fraction % Recovery: 99.8

Weight as Received (Grams)	28.8511
Percent Solids	64.3
Weight Oven-Dried (Grams)	18.5513

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Wt. Recovered
Medium Gravel	4.75 mm	4	0	0.00
Fine Gravel	2.00 mm	10	0.0342	0.18
Very Coarse Sand	0.850 mm	20	*0.0545	0.29
Coarse Sand	0.425 mm	40	*0.5113	2.76
Medium Sand	0.250 mm	60	3.1398	16.9
Fine Sand	0.106 mm	140	2.0455	11.0
Very Fine Sand	0.075 mm	200	1.2430	6.70
Clay			1.5800	8.52
Silt			9.8200	52.9
		Total	18.4283	99.2

* Organic matter present

Approved by Arnie Spielman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3550/8080 (Low Level)
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		B501892-1	Method Blank
Lab Code:		K5054-1	K5054-MB
Date Analyzed:		08/26/92	08/26/92
Analyte	**MRL**		
Alpha-BHC	0.001	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND
Beta-BHC	0.003	ND	ND
Heptachlor	0.001	ND	ND
Delta-BHC	0.001	ND	ND
Aldrin	0.001	ND	ND
Heptachlor Epoxide	0.001	ND	ND
Endosulfan I	0.001	ND	ND
4,4'-DDE	0.001	ND	ND
Dieldrin	0.001	ND	ND
Endrin	0.001	ND	ND
4,4'-DDD	0.001	ND	ND
Endosulfan II	0.001	ND	ND
4,4'-DDT	0.001	ND	ND
Endrin Aldehyde	0.001	ND	ND
Endosulfan Sulfate	0.001	ND	ND
Methoxychlor	0.002	ND	ND
Toxaphene	0.03	ND	ND
Chlordane	0.01	ND	ND
PCBs: Aroclor 1016	0.01	ND	ND
Aroclor 1221	0.01	ND	ND
Aroclor 1232	0.01	ND	ND
Aroclor 1242	0.01	ND	ND
Aroclor 1248	0.01	ND	ND
Aroclor 1254	0.01	ND	ND
Aroclor 1260	0.01	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Ami Apelman Date 9/3/92

000 8

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/25/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3550/8080 (Low Level)
mg/Kg (ppm)
Dry Weight Basis

Sample Name:		B501892-2	Method Blank
Lab Code:		K5054-2	K5054-MB
Date Analyzed:		08/27/92	08/27/92
Analyte	**MRL**		
Alpha-BHC	0.001	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND
Beta-BHC	0.003	ND	ND
Heptachlor	0.001	ND	ND
Delta-BHC	0.001	ND	ND
Aldrin	0.001	ND	ND
Heptachlor Epoxide	0.001	ND	ND
Endosulfan I	0.001	ND	ND
4,4'-DDE	0.001	0.002	ND
Dieldrin	0.001	ND	ND
Endrin	0.001	ND	ND
4,4'-DDD	0.001	0.002	ND
Endosulfan II	0.001	ND	ND
4,4'-DDT	0.001	0.002	ND
Endrin Aldehyde	0.001	ND	ND
Endosulfan Sulfate	0.001	ND	ND
Methoxychlor	0.002	ND	ND
Toxaphene	0.03	ND	ND
Chlordane	0.01	ND	ND
PCBs: Aroclor 1016	0.01	ND	ND
Aroclor 1221	0.01	ND	ND
Aroclor 1232	0.01	ND	ND
Aroclor 1242	0.01	ND	ND
Aroclor 1248	0.01	ND	ND
Aroclor 1254	0.01	ND	ND
Aroclor 1260	0.01	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Arnie Apfelman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Work Order No.:**	K925054
Sample Matrix:	Sediment		

Volatile Organic Compounds
EPA Method 8240 (Low Level)
µg/Kg (ppb) Dry Weight Basis

Sample Name:		B501892-1	B501892-2
Lab Code:		K5054-1	K5054-2
Date Analyzed:		08/19/92	08/19/92
Analyte	**MRL***		
Trichloroethene (TCE)	10	ND	ND
Tetrachloroethene (PCE)	10	ND	ND
Ethylbenzene	10	ND	ND
Total Xylenes	10	ND	ND
1,3-Dichlorobenzene	10	ND	ND
1,4-Dichlorobenzene	10	ND	ND
1,2-Dichlorobenzene	10	ND	ND

MRL Method Reporting Limit
***** MRLs are elevated because of matrix interferences.
ND None Detected at or above the method reporting limit

Approved by Annie Apelman Date 9/3/92

00010

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Port of Portland
Project: Berth 501 Dredging
Sample Matrix: Sediment

Work Order No.: K925054

Volatile Organic Compounds
EPA Method 8240 (Low Level)
µg/Kg (ppb) Dry Weight Basis

Sample Name:		Method Blank
Lab Code:		K5054-MB
Date Analyzed:		08/19/92
Analyte	**MRL**	
Trichloroethene (TCE)	5	ND
Tetrachloroethene (PCE)	5	ND
Ethylbenzene	5	ND
Total Xylenes	5	ND
1,3-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Ame Apelman Date 9/3/92

00011

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/24/92
		Work Order No.:	K925054

Phthalate Esters and Polynuclear Aromatic Hydrocarbons
EPA Method 3550 in combination with GC/MS SIM Method
µg/Kg (ppb)
Dry Weight Basis

Sample Name:		B501892-1	Method Blank
Lab Code:		K5054-1	K5054-MB
Analyte	**MRL**		
Dimethyl Phthalate	20	ND	ND
Naphthalene	20	ND	ND
2-Methylnaphthalene	20	ND	ND
Acenaphthylene	20	ND	ND
Dibenzofuran	20	ND	ND
Diethyl Phthalate	20	ND	ND
Acenaphthene	20	ND	ND
Fluorene	20	ND	ND
Phenanthrene	20	ND	ND
Anthracene	20	ND	ND
Di-n-butyl Phthalate	20	ND	ND
Fluoranthene	20	ND	ND
Pyrene	20	20	ND
Benz(a)anthracene	20	ND	ND
Chrysene	20	ND	ND
Butylbenzyl Phthalate	20	ND	ND
Benzo(b+k)fluoranthene♦	40	ND	ND
Benzo(a)pyrene	20	ND	ND
Indeno(1,2,3-cd)pyrene	20	ND	ND
Dibenz(a,h)anthracene	20	ND	ND
Benzo(g,h,i)perylene	20	ND	ND
Bis(2-ethylhexyl) Phthalate	20	*72	ND
Di-n-octyl Phthalate	20	ND	ND

SIM Selected Ion Monitoring
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
♦ These compounds coelute; therefore, the results are reported as the combined concentration.
* Result is from the analysis of a diluted sample, performed on August 25, 1992.

Approved by Allie Spielman Date 9/3/92

00012

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/24/92
		Work Order No.:	K925054

Phthalate Esters and Polynuclear Aromatic Hydrocarbons
EPA Method 3550 in combination with GC/MS SIM Method
µg/Kg (ppb)
Dry Weight Basis

Sample Name:	B501892-2
Lab Code:	K5054-2

Analyte	MRL*	
Dimethyl Phthalate	50	ND
Naphthalene	50	ND
2-Methylnaphthalene	50	ND
Acenaphthylene	50	ND
Dibenzofuran	50	ND
Diethyl Phthalate	50	ND
Acenaphthene	50	ND
Fluorene	50	ND
Phenanthrene	50	74
Anthracene	50	ND
Di-n-butyl Phthalate	50	ND
Fluoranthene	50	74
Pyrene	50	83
Benz(a)anthracene	50	ND
Chrysene	50	ND
Butylbenzyl Phthalate	50	ND
Benzo(b+k)fluoranthene♦	100	ND
Benzo(a)pyrene	50	ND
Indeno(1,2,3-cd)pyrene	50	ND
Dibenz(a,h)anthracene	50	ND
Benzo(g,h,i)perylene	50	ND
Bis(2-ethylhexyl) Phthalate	50	220
Di-n-octyl Phthalate	50	ND

SIM Selected Ion Monitoring
MRL Method Reporting Limit
* MRLs are elevated because of matrix interferences and because the sample(s) required diluting.
ND None Detected at or above the method reporting limit
♦ These compounds coelute; therefore, the results are reported as the combined concentration.

Approved by Ami Spielman Date 9/3/92

00013

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/26/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/31/92
		Work Order No.:	K925054

Phenols
EPA Method 3550 in combination with GC/MS SIM Method
µg/Kg (ppb)
Dry Weight Basis

Sample Name:	***B501892-2**
Lab Code:	**K5054-2**

Analyte	**MRL****	
Phenol	50	ND
2-Methylphenol	50	ND
3- and 4-Methylphenol◆	50	ND
2,4-Dimethylphenol	50	ND
Pentachlorophenol	130	ND

SIM Selected Ion Monitoring

* Sample was extracted two days past the end of the recommended maximum holding time. Initial analysis, performed *within* the recommended maximum holding time, failed CAS QC criteria. The reanalysis met our QC criteria. It is the opinion of CAS that the quality of the sample data has not been significantly affected.

MRL Method Reporting Limit

** MRLs are elevated because of matrix interferences and because the sample(s) required diluting.

ND None Detected at or above the method reporting limit

◆ Quantified as 4-methylphenol.

Approved by Arnie Apfelman Date 9/3/92

00014

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/25/92
		Work Order No.:	K925054

Phenols
EPA Method 3550 in combination with GC/MS SIM Method
µg/Kg (ppb)
Dry Weight Basis

Sample Name:		*B501892-1	Method Blank
Lab Code:		K5054-1	K5054-MB
Analyte	**MRL**		
Phenol	20	ND	ND
2-Methylphenol	20	ND	ND
3- and 4-Methylphenol◆	20	ND	ND
2,4-Dimethylphenol	20	ND	ND
Pentachlorophenol	50	ND	ND

SIM Selected Ion Monitoring
***** This extraction batch did not meet QC criteria for acid compounds. Insufficient sample quantity remained for additional analysis. Data reported here should be considered as estimated values.
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
◆ Quantified as 4-methylphenol.

Approved by Anne Apelman Date 9/3/92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Port of Portland	**Date Extracted:**	08/26/92
Project:	Berth 501 Dredging	**Date Analyzed:**	08/31/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Phenols
EPA Method 3550 in combination with GC/MS SIM Method
µg/Kg (ppb)
Dry Weight Basis

Sample Name:		Method Blank
Lab Code:		K5054-MB
Analyte	**MRL**	
Phenol	20	ND
2-Methylphenol	20	ND
3- and 4-Methylphenol♦	20	ND
2,4-Dimethylphenol	20	ND
Pentachlorophenol	50	ND

SIM Selected Ion Monitoring
MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
♦ Quantified as 4-methylphenol.

Approved by Annie Apfelman Date 9/3/92

00016

APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/26/92
		Work Order No.:	K925054

Surrogate Recovery Summary
Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3550/8080

Sample Name	Lab Code	Percent Recovery	
		Tetrachloro-*m*-xylene	Decachlorobiphenyl
B501892-1	K5054-1	60	*42
Method Blank	K5054-MB	92	81
	CAS Acceptance Criteria	45-112	53-120

* Outside of acceptance limits because of matrix interferences. The chromatogram showed nontarget components that interfered with the analysis.

Approved by Arnie Spielman Date 9/3/92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/25/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/27/92
		Work Order No.:	K925054

Surrogate Recovery Summary
Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs)
EPA Methods 3550/8080

Sample Name	Lab Code	Percent Recovery	
		Tetrachloro-*m*-xylene	Decachlorobiphenyl
B501892-2	K5054-2	82	60
Method Blank	K5054-MB	92	67
	CAS Acceptance Criteria	45-112	53-120

Approved by ami Apelman Date 9/3/92

00019

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Analyzed:**	08/19/92
Sample Matrix:	Sediment	**Work Order No.:**	K925054

Surrogate Recovery Summary
Volatile Organic Compounds
EPA Method 8240 (Low Level)

Sample Name	Lab Code	Percent Recovery		
		1,2-Dichloroethane - D_4	Toluene - D_8	4-Bromofluorobenzene
501892-1	K5054-1	112	100	97
501892-2	K5054-2	*24	100	89
Method Blank	K5054-MB	**130	101	104
	EPA Acceptance Criteria	70-121	84-138	59-113

* Outside of acceptance limits because of matrix effects. This sample was analyzed a second time, and again produced unacceptable recovery values. The results from the initial analysis are reported.

** Outside of acceptance limits. Since the elevated percent recovery is for the method blank, and since the percent recovery for all of the associated samples is acceptable, it is the opinion of CAS that the quality of the sample data has not been significantly affected.

Approved by anne Apelman Date 9/3/92

00020

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/24/92
		Work Order No.:	K925054

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons
EPA Method 3550 in combination with GC/MS SIM Method

Sample Name	Lab Code	Percent Recovery		
		Naphthalene - D_8	Fluorene - D_{10}	Chrysene - D_{12}
B501892-1	K5054-1	49	80	86
B501892-2	K5054-2	*65	*96	*92
Method Blank	K5054-MB	62	82	107

SIM Selected Ion Monitoring
***** Analyte concentration is an estimate because the result was below the instrument calibration range and below the sample MRL.

Approved by Arnie Apfelman Date 9/3/92

00021

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/19/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/25/92
		Work Order No.:	K925054

Surrogate Recovery Summary
Phenols
EPA Method 3550 in combination with GC/MS SIM Method

Sample Name	Lab Code	Percent Recovery		
		2-Fluorophenol	Phenol - D_6	2,4,6-Tribromophenol
B501892-1	K5054-1	*<5	*<5	*<5
Method Blank	K5054-MB	52	**<5	16

SIM Selected Ion Monitoring
* Outside of acceptance limits. Insufficient sample quantity remained for additional analysis.
** Outside of acceptance limits.

Approved by Anne Apelman Date 9/3/92

00022

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Port of Portland	**Date Received:**	08/14/92
Project:	Berth 501 Dredging	**Date Extracted:**	08/26/92
Sample Matrix:	Sediment	**Date Analyzed:**	08/31/92
		Work Order No.:	K925054

Surrogate Recovery Summary
Phenols
EPA Method 3550 in combination with GC/MS SIM Method

Sample Name	Lab Code	Percent Recovery		
		2-Fluorophenol	Phenol - D_6	2,4,6-Tribromophenol
B501892-2	K5054-2	*74	*70	*92
Method Blank	K5054-MB	63	67	67

SIM Selected Ion Monitoring
* Analyte concentration is an estimate because the result was below the instrument calibration range and below the sample MRL.

Approved by Amie Appelman Date 9/3/92

APPENDIX B

CHAIN OF CUSTODY INFORMATION

[redacted]

CHAIN OF CUST[illegible] RECORD

00025

COMPANY: Port of Portland	PROJECT NAME: Berth 501 dredging	LAB PROJECT NO.	
PROJECT MANAGER: David Hancock	PROJECT NUMBER		
COLLECTED BY: David Hancock	P.O. NUMBER	RUSH ☐ YES ☑ NO	
COMMENTS: Berth 501 - Columbia River Berth ... for lowest detection limits ... - don't need TBT	SAMPLES RECEIVED AT 4°C ☑ YES ☐ NO SAMPLES IN APPROPRIATE CONTAINERS ☑ YES ☐ NO	PROVIDE VERBAL RESULTS ☑ YES ☐ NO PROVIDE FAX RESULTS ☑ YES ☐ NO	

ANALYSES TO BE PERFORMED

LAB NO.	SAMPLE I.D.	DATE	TIME	SAMPLE DESCRIPTION	SOIL	WATER	OTHER	NUMBER OF CONTAINERS	HALOGENATED VOLATILES 601/8010	BTEX 602/8020	VOLATILES 624/8240	HCID/FUEL SCAN GC/FID	TPH - GASOLINE	TPH - DIESEL	TPH - 418.1	SEMI-VOLATILES 625/8270	PCB's 608/8080	CHLORINATED PESTICIDES 608/8080	Total METALS	PAH	grain size / volatile solids					REMARKS
[illegible]941	B501892-1	8-14		Sediment	✓			1								✓	✓	✓		✓						glass
	B501892-1	8-14		Sediment	✓			1											✓							plastic metals
	B501892-1	8-14		Sediment	✓			1													✓					plastic - grain size etc
	B501892-2	8-14		Sediment	✓			1								✓	✓	✓		✓						glass
	B501892-2	8-14		Sediment	✓			1											✓							plastic metals
	B501892-2	8-14		Sediment	✓			1													✓					plastic - grain size etc

RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY
David R Hancock		8/14/92 1514	Lance [illegible]	CBS
RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY
RELINQUISHED BY	COMPANY	DATE/TIME	RECEIVED BY	COMPANY